

HYBRIDIZATION IN THE AVIAN GENUS *MYZANTHA*

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ABSTRACT

Three *Myzantha melanocephala* × *M. flavigula* hybrids are described. One was discovered in May and the others in December 1970 at the same place near Meandarra, Queensland. Those in December were young birds being fed by adults of both species. There is some habitat separation between these species in regions of sympatry, and sporadic hybridization could be widespread.

While studying aspects of ecology and behaviour of Noisy and Yellow-throated Miners, *Myzantha melanocephala* and *M. flavigula*, six kilometres west of Meandarra, Queensland, on 29 May 1970, my attention was drawn by the activities of a single bird foraging in a narrow strip of brigalow. This was unusual in itself, for miners in this region generally forage in small flocks. The bird's behaviour was more similar to that of *M. flavigula* than *M. melanocephala* in that much time was spent gliding and swooping between trees and about their outer foliage.

In flight, the white rump, a diagnostic character of *M. flavigula*, was quite obvious. When the bird landed, however, the black on the crown, cheeks, and throat, typical of *M. melanocephala*, was the most noticeable feature. A mist-net was set up and the bird quickly lured by tape-recordings of a communal display of *M. melanocephala*. The commotion attracted a few individuals of both species to the spot, but they did not remain long.

In the hand, the bird clearly possessed plumage characters of both species. The whitish-grey rump was similar to that found among specimens of *M. flavigula* occurring in the same region. The head pattern, however, although not as dark as that of adults of *M. melanocephala* was unmistakably of the pattern typical of that species. The throat possessed a trace of yellow as is found in *M. melanocephala*, not the high intensity characteristic of *M. flavigula*. There was absolutely no trace of yellow on the forehead. (I have never seen yellow on the foreheads of any of scores of Noisy Miners handled from the Meandarra or Brisbane areas. On the other hand, I have never handled a Yellow-throated Miner that lacked this feature.) The specimen was to be taken back to Brisbane for observation but was accidentally released a few days later from its temporary holding cage in Meandarra.

In captivity it was noted that certain of its vocalizations were lower than comparable ones of a Yellow-throated Miner being kept with it. However, there is considerable overlap in the range of vocalizations of the two species in this region, and they can hardly be con-

sidered as reliably diagnostic. The specimen was not measured, but considerable variation results from differences in age and sex, and weights and measurements can be considered as suggestive only. For example, means and standard errors of wing length for twenty-eight *M. melanocephala* and forty-seven *M. flavigula* from the Meandarra region were 130.5 ± 1.07 mm and 127.9 ± 0.687 mm. Weights are even more variable: 58.9 ± 0.91 g (N = 28) and 58.5 ± 1.26 g (N = 39) respectively. Although the mean wing measurements differ significantly ($P < 0.05$; t-test), neither of these measurements can be used for specific identifications because of their overlapping ranges.

As the combination of features shown by this individual was unique and included highly diagnostic characters of two closely related species, it seemed reasonable to conclude that it was a hybrid.

On 15 December 1970 two more hybrids were discovered. They were fully grown, but not yet entirely independent. Several apparent adults were feeding them, as is typical for *M. melanocephala* (Dow, 1970) and *M. flavigula* (Dow, unpublished). They spent most of their time foraging at the edge of a small stand of brigalow and belah, 150 m south of the location at which the previously described hybrid had been found.

These birds were virtually identical, and presumably were siblings. Their overall coloration was more similar to that of *M. flavigula* than *M. melanocephala*. The white rump was conspicuous in flight, but the facial pattern, complete with the black lateral semicircle of *M. melanocephala*, was less dark than in the earlier hybrid. The forehead and the crown were more grey than in *M. melanocephala*. Despite the paleness, the pattern was distinctly that of *M. melanocephala*. Their flight was more similar to that of *M. flavigula*. I was unable to net these birds, but obtained some 35 and 16 mm coloured photographs of mediocre quality.

They uttered food-begging calls whenever approached by an adult, and tended to follow nearby adults. They were being fed by six Noisy Miners and one Yellow-throated Miner. Some of the Noisy Miners occasionally showed some aggression towards the Yellow-throated Miner, but no more than one would expect to a bird outside the resident group (see Dow, 1970). Three other Yellow-throated Miners were seen to move through the area in the next two days, but these never attempted to feed the juveniles. The Noisy Miners all belonged to a group residing in the area, and all had been colour-banded on 27 March 1970. The reproductive female of the group (WOO/060-05481) was observed incubating three eggs on 9 October 1970, 60 m from where the hybrids were now most often seen. The size and behaviour of the hybrids, and the absence of any other juveniles, suggested that they had indeed fledged from this nest, but my trips to this study-area have been too infrequent for continuous observations of nesting activity.

In the Meandarra region, 200 km west of the Great Dividing Range, the two species occupy slightly different habitats, *M. flavigula* being more often seen in open country with scattered trees and being very localized in distribution, *M. melanocephala* occupying more heavily wooded areas and riparian situations. The study-area from which these records were obtained was selected in 1969 because it represented a zone of overlap where the two species were fairly abundant and nested in small colonies, separated in places by less than one kilometre. Sometimes mixed flocks are seen there, usually when Noisy Miners move across open areas and are challenged by Yellow-throated Miners. Such encounters are usually

similar in nature to those of territorial groups of either species. I have never observed non-agonistic foraging flocks of mixed species, although both were at times attracted in large numbers to an artificial feeding station in nearby Meandarra.

Presumably there are many regions where the two species breed in such close proximity. Previous authors have remarked on habitat separations essentially similar to those I describe, and most report *M. melanocephala* as the species characteristic of timbered watercourses in regions of sympatry with *M. flavigula* (White, 1918; Lang, 1927; Sullivan, 1931; Chandler, 1937). Others, however, mention *M. flavigula* as favouring watercourses (Alexander, 1918; White, 1921). Some writers have implied that *M. melanocephala*, being a more robust species, actively usurps *M. flavigula* from more heavily wooded habitats (White, 1918; Sullivan, 1931). In the environs of Meandarra the patchy distribution of *M. flavigula* is noticeable, with small local populations being found in isolated pockets or colonies, often near populations of *M. melanocephala*. The town of Meandarra seems to be near the centre of a loose cluster of these isolated populations. I have found a few others but none farther than 38 km south of Meandarra at Westerling and Inglestone Stations, or farther than 50 km north at Condamine. I was unable to find local colonies of *M. flavigula* more than 4 km west of Meandarra, and, in fact, a transect of $\frac{1}{2}$ -mile observation points along the Moonie Highway revealed none until west of St George, about 175 km west of the Meandarra population. To the east I have found local populations as far as South Glen (just west of Tara), i.e. 44 km from Meandarra. I have observed very small and isolated groups much farther east, between Jondaryan and Oakey, about 35 km west of the crest of the Great Dividing Range.

In all these places *M. flavigula* occupied much more open country than did *M. melanocephala*, except just west of St George, where it occupied more heavily wooded places. This patchy distribution is apparently typical, even in some regions where the species occurs alone (Sedgwick, 1947). A similar distribution of *M. melanocephala* apparently occurs in populations well inside the range of *M. flavigula* (McGill, 1944). So although interactions between the two species have not been described—some authors in regions of sympatry have noted that the species keep quite apart (Chisholm, 1940)—the opportunity for hybridization must exist in many localities.

Examination of 46 specimens of *M. melanocephala* and 26 of *M. flavigula* in the Queensland Museum revealed no hybrids and none with plumage variations sufficient to account for the three individuals described from the field. All specimens of *M. flavigula* and none of *M. melanocephala* had distinct yellow foreheads. As found in field observations, some yellow occurred on the throats of all specimens of *M. melanocephala*, although in two it was virtually absent. Only *M. flavigula* showed the whitish rump. Older specimens, particularly those of *M. flavigula* were badly 'foxed', but regional variation in coloration was nonetheless apparent. One specimen (Registration No. QM O6612) of *M. flavigula* appeared darker on the cheeks, back, rump, and breast than conspecific specimens, but not as dark as *M. melanocephala*. It had been collected near St George, Queensland, in the western half of the zone of sympatry.

Hybridization in the Meliphagidae is apparently uncommon. Gray (1958) lists only one known instance: interbreeding 'apparently' occurs between *Melidectes belfordi* and *M. leucostephes*.

Keast (1961, p. 387) states that hybrid zones do not occur in the Meliphagidae. And in his discussion of the *M. flavigula-obscura-melanotis* complex, Serventy (1953) did not mention any instances of hybridization among members of the genus, *flavigula* and *melanotis* behaving as good species where their ranges overlap, as do *flavigula* and *melanocephala*. I have been unable to find any published records of hybridization between these species. Meandarra populations do not show a wide range of intermediately plumaged individuals—but differences are subtle and extensive collections have not been made—so that hybridization may not be common. On the other hand, perhaps hybridization on wide fronts is not as uncommon as generally believed. The subtlety of specific plumage differences could mean that hybrid individuals would be easily overlooked. The white rump of *M. flavigula* is probably considered by field ornithologists to be the best diagnostic character of the species (Sullivan, 1931; Bryant, 1937; Chisholm, 1938; Jarman, 1945; Francis, 1949), hence the preference of some for the name White-rumped Miner (Officer, 1964, p. 72). In fact, one editor (in Elliot, 1938), stated in an emphatic footnote that no problem in field identification could arise between the species because 'the white rump of *M. flavigula* is an infallible guide.' If hybrid individuals follow the pattern of those I have described they undoubtedly would be identified as *M. flavigula* in flight and *M. melanocephala* when resting or foraging. Certainly, ornithologists should be aware of the possibility of hybridization between these species and should be on the look-out for intermediate individuals. Serventy (1953) stressed the need for study of *M. melanocephala*, *M. melanotis*, and *M. flavigula* in western Victoria and South Australia. Clearly, a wider study of the relationships of populations within the genus could profitably be made.

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LITERATURE CITED

- ALEXANDER, W. B., 1918. Notes on birds seen on the Murray River, August, 1918. *Emu* 18: 122-4.
BRYANT, C. E., 1937. Narrative of the Eyre Peninsula Camp-out. *Emu* 36: 229-42.
CHANDLER, L. E., 1937. The Yellow-throated Miner. *Emu* 37: 70.
CHISHOLM, E. C., 1938. The birds of Barellan, New South Wales with botanical and other notes. *Emu* 37: 301-13.
1940. A five weeks' biological survey of the Peak Hill District, N.S.W. *Emu* 39: 267-72.
DOW, D. D., 1970. Communal behaviour of nesting Noisy Miners. *Emu* 70: 131-4.
ELLIOTT, A. J., 1938. Birds of the Moonie River District adjacent to the border of New South Wales with Queensland. *Emu* 38: 30-49.
FRANCIS, L. S., 1949. A trip to Darwin via Alice Springs. *S. Aust. Orn.* 19: 35-8.
GRAY, A. P., 1958. 'Bird Hybrids'. pp. 1-390. Tech. Comm. No. 13, Commonwealth Bureau of Animal Breeding and Genetics, Edinburgh.

- JARMAN, H. E. A., 1945. The birds of Elliott and Newcastle waters, Northern Territory. *S. Aust. Orn.* **17**: 74-8.
- KEAST, J. A., 1961. Bird speciation on the Australian continent. *Bull. Mus. comp. Zool.* **123**: 305-495.
- LANG, C. L., 1927. A trip to the Mallee. *Emu* **27**: 110-16.
- MCGILL, A. R., 1944. An ornithological trip to north-western New South Wales. *Emu* **44**: 50-63.
- OFFICER, H. R., 1964. 'Australian Honeyeaters'. pp. 1-85. (Bird Observers Club: Melbourne).
- SEDGWICK, E. H., 1947. Northern Territory bird notes. *Emu* **46**: 349-78.
- SERVENTY, D. L., 1953. Some speciation problems in Australian birds: with particular reference to the relations between Bassian and Eyrean 'species-pairs'. *Emu* **53**: 131-45.
- SULLIVAN, C., 1931. Notes from north-western New South Wales. *Emu* **31**: 124-35.
- WHITE, S. A., 1918. Birds of Lake Victoria and the Murray River for 100 miles down stream. *Emu* **18**: 8-25.
1921. A central Australian expedition. *Emu* **21**: 84-94.